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| 09/737,714 | 12/15/2000 | Xiaolin Lu | TI-30142 | 9315 |

7590 01/29/2004

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| EXAMINER |
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TRUONG, LECHI

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| ART UNIT | PAPER NUMBER |
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2126

DATE MAILED: 01/29/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application

09/737,714

Applicant(s)

LU ET AL.

Examiner

LeChi Truong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2000.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1- 23 are presented for examination. This Office Action is in response to the amendment filed 11/07/2003

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims **1-5, 7, 11, 12, 14, 17-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sambamurthy et al (US Patent 6,108,713).

4. **As to claim 1**, Sambamurthy teaches the invention substantially as claimed including a media access control layer (media access controller, col 5, ln 1-43/ col 8, ln7-34/ col 14, ln 49-67, col 15, 1-30), system interconnection type network (IOS, Fig .1a,b), a plurality of operating modules (ETHER 112, BACKOFF 216, DEFFER 214, col 14, ln 34-65), a respective media access control layer function (programming a desired defer period, programming a desired slot time... col 13, ln 50), a plurality of communication standards (standard protocols, col 37, ln 58-63 / IEEE 802.3u standard..., ANSI/IEEE std 802.3, col 36, ln 20-26), a host interface module (

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network data bus interface controller 104/ network flow managing FIFO controller 110/FIFO 106, col 8, ln 35-65/ fig. 2), a host processor(digital processor, col 37, ln 1-19), a physical interface module(SUPERMAC Tx controller 118, Transmit LLC Interface 202 / supper Mac controller 120, col 13, ln 39-50, Fig 2/ independent interface (GMII) 96, col 27, ln 1-),a physical layer(physical, Fig 1B).

5. Sambamurthy does not explicit teach an inter-module communication interface for communication between modules. However, Sambamurthy teaches an inter-module communication interface for communication between modules(a media access control manager interfacing with the transmit and receive media controllers. The media access controller managing the flow of packet data through the transmit and receiving multi-packet queue FIFOs, col 5, ln 10-15/ col 38, ln 55-60/ a network flow managing FIFO Tx controller 110 is implement to manage the high speed flow of packets from FIFO Tx 106 into a micro RISC stream processor 114, col 8, ln 48-55).

6. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Sambamurthy for the purpose of transferring signals. Because, Sambanurthty's a media access control manger interfacing would processes out going packet data received from an upper layer for transmission to a physical layer.

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7. **As to claim 2**, Sambamurthy teaches a portion of said physical layer (receiver utilities block 920, receiver control block 910... fig. 9), a physical layer operation function (the function blocks contained with receive utilities block, col 29, ln 32-45).

8. **As to claim 3**, Sambamurthy teaches a digital signal processing function (digital processor, col 37, ln 1-19).

9. **As to claim 4**, Sambamurthy teaches a remainder of said physical layer (CSMA/CD algorithm, col 2, ln 5-22).

10. **As to claim 5**, Sambamurthy teaches a host interface module (network data bus interface controller 104/ network flow managing FIFO controller 110/FIFO 106, col 8, ln 35-65/ fig. 2), operating modules (ETHER 112, BACKOFF 216, DEFFER 214, col 14, ln 34-65), digital processor (digital processor, col 37, ln 1-19).

11. **As to claim 7**, Sambamurthy teaches operating modules (ETHER 112, BACKOFF 216, DEFFER 214, col 14, ln 34-65), a digital signal processor (digital processor, col 37, ln 1-19).

12. **As to claim 11**, Sambamurthy teaches a transmitter module, receive module, deference module, statistic maintenance module and utility module (ETHER 112, BACKOFF 216, DEFER 214, col 14, ln 36-67 to col 15, ln 1-60).

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13. As to claim 12, Sambamurthy teaches a media access control layer (media access controller, col 5, ln 1-43/ col 8, ln 7-34/ col 14, ln 49-67, col 15, 1-30), system interconnection type network (OSI, Fig. 1a,b), a plurality of operating modules (ETHER 112, BACKOFF 216, DEFFER 214, col 14, ln 34-65), a respective media access control layer function (programming a desired defer period, programming a desired slot time... col 13, ln 50), a plurality of communication standards (standard protocols, col 37, ln 58-63 / IEEE 802.3u standard..., ANSI/IEEE std 802.3, col 36, ln 20-26).

14. Sambamurthy does not explicitly teach the term separating media access control layer operating function. However, Sambamurthy teaches separating media access control layer operating function (Blocks belong to the media access control are separated / three separate processing blocks referred to herein as ETHER 112, BACKOFF 216 and DERRER, col 14, ln 37-45).

15. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Sambamurthy for the purpose of separating media access control. Because Sambamurthy's blocks belong to the media access control are separated would make the transfer signals between layers more consistent.

16. As to claim 14, it is an apparatus claim of claim 4, it is rejected for the same reason of claim 4.

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17. As to claim 17, Sambamurthy teaches a media access control layer (media access controller, col 5, ln 1-43/ col 8, ln 7-34/ col 14, ln 49-67, col 15, 1-30), a software-based host (network data bus interface controller 104/ network flow managing FIFO controller 110/FIFO 106, col 8, ln 35-65/ fig. 2), a host processor (digital processor, col 37, ln 1-19), a physical interface module (SUPERMAC Tx controller 118, Transmit LLC Interface 202 / super Mac controller 120, col 13, ln 39-50, Fig 2/ independent interface (GMII) 96, col 27, ln 1-), a physical layer (physical, Fig 1B).

18. As to claim 18, it is an apparatus claim of claim 18, it is rejected for the same reason as claim 2 above.

19. As to claim 19, Sambamurthy teaches a remainder of said physical layer (CSMA/CD algorithm, col 2, ln 5-22), digital processor (digital processor, col 37, ln 1-19).

20. As to claim 20, 21, Sambamurthy teaches physical layer, operating modules in MAC are in one a digital processor; see the rejection of claim 5.

21. As to claim 22, sambamurthy does not explicitly teach an inter-module communication interface for communication between modules. However, Sambamurthy teaches a defer ready signal and backoff ready signal is received at ETHER block (col 24, ln 57-67). It would have been obvious to apply the teaching of Sumbamurthy for the purpose of transferring signals between modules; the system must have an interface for transferring signals.

22. Claims **6, 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sambamurthy et al (US Patent 6,108,713) in view of Allison et al (US. Patent 6,167,032)

23. **As to claim 6**, Sambamurthy teaches a data communication protocol (processing and transmitting data over Ethernet network, col 1, ln 46-55/ transmission-protocol, col 7, ln 55-65), data frame transmission (frame, col 8, ln67-68 to col 9, ln 1-24), an additional descriptor (the circular sequence numbering scheme, col 9, ln 1-24), data queue (a predetermined number (e.g., 1,2,3,...20), a plurality of frames (frames, col 9, ln 1024), data buffer (buffer, col 9, ln 1-30)

24. Sambamurthy does not teach a descriptor for indicating frame location and size, host memory. However, Allison teaches a descriptor for indicating frame location and size, host memory (frame descriptor 22, memory, col 4, ln 1-67/ Fig.2).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Allison and Sambamurthy. Because, Allison's a descriptor would establish an adjustable transmit threshold for a MAC device on frames.

26. **As to claim 23**, Sambamurthy teaches a data communication protocol (processing and transmitting data over Ethernet network, col 1, ln 46-55/ transmission-protocol, col 7, ln 55-65), communication data frames (frame, col 8, ln67-68 to col 9, ln 1-24), a queue (a predetermined number(e.g. , 1,2,3,...20).

27. Allison teaches frame descriptor 22, memory (col 4, ln 1-67/ Fig.2).

28. Claims **8, 9, 15, 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sambamurthy et al (US Patent 6,108,713) in view of Allison et al (US. Patent 6,167,032) and further in view of Jame Martin (Enterprise network data link subnetwork).

29. **As to claim 8**, Sambamurthy does not teach a second processor. However, Martin teaches a second processor (different devices, Fig, 19.5. page 270). Operation modules belong to Mac are in the second processor.

30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Martin and Sambamurthy. Beause, Martin' s a second process would make Media access control more available to use in any systems.

31. **As to claim 9**, Sambamurthy teaches MAC is implemented in the same the processor so the second processor is a host processor.

32. **As to the claim 15, 16, they are apparatus of claims 8, 9;** they are rejection for the same reason as claim 8, 9 above.

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33. Claims **10, 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sambamurthy et al (US Patent 6,108,713) in view of Allison et al (US. Patent 6,167,032) and further in view of (WM) World Movers.

34. **As to claim 10**, Sambamurthy does not teach Hardware accelerator. However, WM teaches hardware accelerator (Hardware accelerator, Page 1).

35. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of WM and Sambamurthy. Because WM's hardware accelerator would improve the performance of a media access control.

36. **As to claim 13**, it is apparatus claim of claim 10, it is rejected for the same reason of claim 10 about.

Response to the argument

37. This action is in response to the argument filed on 11/07/2003. Applicant argued (1) "Sambamurth et al does not discuss or even suggest an inter-module communication interface enabling communication between said plurality of operating modules. (2) "Sambamurthy et al clearly does not discuss or even suggest separating media access control layer operating functions into plurality of corresponding software programmable".

38. Examiner respectfully traverses Applicant's remarks:

A. As to point (1), Sambamurthy clearly teaches a media access control manager interfacing with the transmit and receive media controllers. The media access controller managing the flow of packet data through the transmit and receiving multi-packet queue FIFOs (col 5, ln 10-15/ col 38, ln 55-60). The media access controller manager interface establishes the communication between the modules in a media access controller.

B. As to point (2), Sambamurthy clearly teaches three separate processing blocks of the media access controller referred to herein as ETHER 112, BACKOFF 216 and DERRER (col 14, ln 37-45).

39. Accordingly, Sambamurthy reference met the claim limitations.

40. Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LeChi Truong whose telephone number is (703) 305 5312. The examiner can normally be reached on 8 - 5.

Fax phone: AFTER_FINAL faxes must be signed and sent to: (703) 746-2738, OFFICAL faxes must be signed and send to: (703) 746-7239, NON OFFICIAL faxes should not be signed, please send to: (703) 746-7240

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305 9000.

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LeChi Truong
January 16, 2004


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